Contents

Prefa	aceix
Pari	t 1: Elementary School
1.	Introduction
2.	The Development of Students' Knowledge of Fractions and Ratios 3 JOHN P. SMITH III Michigan State University, East Lansing, Michigan
3.	Children's Development of Meaningful Fraction Algorithms: A Kid's Cookies and a Puppy's Pills
4.	Organizing Diversity in Early Fraction Thinking
5.	Using Manipulative Models to Build Number Sense for Addition and Fractions
6,	Young Children's Growing Understanding of Fraction Ideas
7.	Go Ask Alice about Multiplication of Fractions

8.	Examining Dimensions of Fraction Operation Sense
9.	Part-Whole Comparisons with Unitizing
10.	Butterflies and Caterpillars: Multiplicative and Proportional Reasoning in the Early Grades
Cla	ssroom Challenges:100
	Exploring Proportional Reasoning: Mr. Tall/Mr. Short
	3/5's Problem
	The Part-Whole Relationship
Par	t 2: Middle School
11.	Introduction
12.	Percents and Proportion at the Center: Altering the Teaching Sequence for Rational Number
13.	Making Explicit What Students Know about Representing Fractions
14.	Using Literature as a Vehicle to Explore Proportional Reasoning 130 Denisse R. Thompson University of South Florida, Tampa, Florida Richard A. Austin University of South Florida, Tampa, Florida Charlene E. Beckmann Grand Valley State University, Allendale, Michigan

15.	Proportional Reasoning: One Problem, Many Solutions!
16.	Using Representational Contexts to Support
	Multiplicative Reasoning
	University of South Carolina, Columbia, South Carolina JOYCE ARNOSKY
	Clemente Middle School, Philadelphia, Pennsylvania JUDY MCMONAGLE
	Stoddard Fleisher Elementary School, Philadelphia, Pennsylvania
17.	Fraction Division Interpretations
	East Carolina University, Greenville, North Carolina
	HAROLD W. MICK
	Virginia Polytechnic Institute and State University, Blacksburg, Virginia JOHN R. KOLB
	North Carolina State University, Raleigh, North Carolina
18.	Developing Understanding of Ratio and Measure as a
	Foundation for Slope162
	JOANNE LOBATO
	San Diego State University, San Diego, California
	Eva Thanheiser
	San Diego State Univertsity, San Diego, California
19.	Using Technology to Teach Concepts of Speed
	San Diego State University, San Diego, California SUSAN NICKERSON
	San Diego State University, San Diego, California
	GARRETT KENEHAN
	San Diego State University, San Diego, California
Cla	assroom Challenges:
	Number Patterns
	Candy Bars and Lawns
	Condo Problem
Pa	rt 3: Professional Development
20.	Introduction
	DAVID DUNCAN
	University of Northern Iowa, Cedar Falls, Iowa

21. Developing Students' Proportional Reasoning: A Chinese Perspective JINFA CAI University of Delaware, Newark, Delaware WEI SUN Towson University, Townson, Maryland	195
22. The Development of Rational Number Sense IRENE T. MIURA San Jose State University, San Jose, California JENNIFER M. YAMAGISHI Thomas Edison Elementary School, Daly City, California	206
23. Multiplicative Reasoning: Developing Student's Shared Meanings CRISTINA GOMEZ West Virginia University, Morgantown, West Virginia	213
24. Fraction Instruction That Fosters Multiplicative Reasoning Lee Vanhille Farmington Bay Youth Center, Farmington, Utah Arthur J. Baroody University of Illinois at Urbana-Champaign, Champaign, Illinois	224
25. Profound Understanding of Division of Fractions	237
26. Connecting Informal Thinking and Algorithms: The Case of Division of Fractions Daniel Siebert Brigham Young University, Provo, Utah	247
Classroom Challenges: Fraction Problem Fraction Problem A Fraction Activity	257

